Does the quality of voluntary disclosure constrain earnings management in emerging economies? Evidence from Middle Eastern and North African Banks

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Abstract

Purpose

This study examines the influence of the quality of voluntary disclosure (QVD) on earnings management (EM) among a sample of commercial banks in the Middle East and North Africa (MENA) region.

Design/methodology/approach

Using a sample of 1,060 bank-year observations for the period 2006–2015, we developed a three-dimensional framework to measure the QVD, which considers the quantity, spread and usefulness of the information. Furthermore, this study examines the QVD-EM nexus employing an ordinary least squares (OLS) regression model. This technique is supplemented with conducting an instrumental variable (IV) regression model and a two-stage least squares (2 SLS) model to overcome the potential occurrence of endogeneity problems.

Findings

Our findings suggest that QVD is negatively attributed to EM in the context of MENA banks. The findings also confirm that the quality of financial reporting is enhanced by QVD dimensions that were considered in our framework, leading banks to less engagement in EM practices. In contrast, the influence of the quantity dimension (level) of the disclosed information has an insignificant impact on EM, while the spread and usefulness dimensions of voluntary disclosure (VD) are negatively and significantly associated with EM in the region.

Originality/value

Our study distinctively develops an innovative measurement for QVD using a new multidimensional model. We also bring new evidence on QVD complexity and its impact on EM practice from an under-researched developing context, namely the MENA region.

Keywords Earnings Management, Discretionary Loan Loss Provisions, Quality of Voluntary Disclosure, the MENA region

Paper Type Research

1. Introduction

The recent financial crisis has shown the insufficiency of the information disclosed by financial firms and their high level of asymmetric information. For example, the bankruptcies of Lehman Brothers were due to poor financial reporting quality, which misled users, causing them to

make inaccurate decisions (Jones and Finley, 2011). The failure of these firms has placed additional pressure on professional-standard 'setters' bodies and listed firms to raise the quality of disclosures (Beretta and Bozzolan, 2008). The information asymmetry between managers and owners may occur when managers opportunistically use earnings manipulations to maximize their interests, leading to poor financial reporting quality, which decreases shareholders' confidence in the disclosed information (Cai, Li, and Tang, 2020; Bigus and Häfele, 2018).

Previous EM studies (e.g., Alzoubi, 2016; Katmon and Al Farooque, 2017; Rezaee and Tuo, 2019; Suteja, Gunardi and Mirawati, 2016) suggested that EM is classified into either opportunistic or informative behaviour. In opportunistic behaviour, managers mislead investors to protect their reputation and secure more remuneration. In contrast, from an informative perspective, managers might disclose more relevant information to the investors. Distinguishing between informative practice and opportunistic behaviour is not easy without considering managerial incentives to manipulate earnings figures.

Although a considerable body of prior studies examined the impact of voluntary disclosure (VD) on EM (Katmon and Al Farooque, 2017; Rezaee and Tuo, 2019; Suteja et al., 2016), there is still an existing gap in the literature related to the measurement of VD. When examining the relationship between VD and EM, two VD measurement methods have been used. The first method used the level and quantity of the disclosed information to measure VD. However, this method neglects some important dimensions, such as the spread and usefulness of VD that distinguish the disclosed information. The second method uses subjective analyst disclosure quality rankings (Francis, Nanda and Olsson, 2008; Husted and De Sousa-Filho, 2018; Muttakin, Khan and Azim, 2015; Sun and Rath, 2010). Such indices may not be widely applicable for availability and transparency reasons (Chatterji et al., 2009).

The motivations of this study are two-fold. Firstly, we go beyond previous studies that ignore the effect of spread and usefulness dimensions in measuring QVD (Alotaibi and Hussainey, 2016; Alturki, 2014; Francis, Nanda and Olsson, 2008; Habbash, Hussainey, and Awad, 2016; Lobo and Zhou, 2001; Muttakin et al., 2015). Therefore, we contribute to the existing body of literature by developing a comprehensive framework that considers three dimensions (i.e., quantity, spread and usefulness) to captures the QVD and examine the QVD-EM nexus. Secondly, to date, a study examining the impact of VD on EM in the banking sector is virtually non-existent. The extant literature of the influence of voluntary disclosure on earnings management provides inconsistent outcomes. For instance, Katmon and Al Farooque (2017) found that VD is negatively associated with EM. Conversely, Prior et al. (2008) have reported

that VD is positively associated with EM. This paper, therefore, addresses this gap by examining the VD-EM nexus using a dataset that has been manually collected from commercial banks operating in the MENA region. This also brings a new perspective leading to a unique contribution to QVD and EM literature.

This paper investigates the extent to which the QVD and EM are statistically and theoretically correlated. Theoretically, managers may voluntarily disclose high-quality voluntary information to mitigate information asymmetry further to signalling their superior performance to those interested in their information (Miller, 2002). Hypothetically, it is expected that managers who voluntarily release high-quality information are unlikely to engage in earnings manipulation. Since high information asymmetry is likely to result in EM practice, the QVD is assumed to mitigate the information gap between agent and principle. Thus, QVD is considered as a vital instrument to monitor executive' opportunistic behaviour and constrain the incidence of EM practice (Bushman and Smith, 2001). Furthermore, the magnitude of EM is less likely to be correlated to the level of VD, which implies a compensatory relationship, meaning that firms with poor quality disclosures might attempt to gain legitimacy by disseminating more information voluntarily to compensate stakeholders for the inadequacy of the disclosed information (Rodríguez-Ariza et al., 2017).

In our study, we use a sample of 106 commercial banks listed in 17 MENA stock exchanges covering a ten year period. Our study employed loan loss provisions (LLP), which is widely used in the banking industry as the main tool for managing EM (Kwak et al., 2009; Leventis et al., 2012). The extent of LLP for each sample firm-year was estimated using Kanagaretnam et al. (2004) model. Our empirical findings suggested that banks that provide high QVD appeared to be less engaged in EM. Additionally, we found no evidence on the association between the quantity (level) of VD and EM in the MENA region.

Our study makes the following contributions. First, prior VD-to-EM studies were confined to examining the relationship between the level of VD and EM (i.e., Katmon and Al Farooque, 2017; Rezaee and Tuo, 2019; Suteja et al., 2016). Our study, therefore, extends the body of previous literature by considering the collective effect of VD quality and quantity on the engagement in earnings manipulation in the banking sector. To achieve this objective, we develop a three-dimensional framework to measure the QVD. This framework takes into consideration the quantity, spread and usefulness of the information disclosed voluntarily, which is regarded as the most comprehensive proxy for disclosure quality. This allows for in-depth descriptions of the patterns and the nature of the disclosed information.

Second, while previous studies have documented that the information asymmetry levels among non-financial institutions are very high (Alotaibi and Hussainey, 2016; Mersni and Othman, 2016; Moumen et al., 2016), there is still an insufficient substantiation on the effect of VD on EM in the banking sector. Thus, we fill this gap by using data from commercial banks operating in 17 MENA countries. Also, our paper is, to the best of our knowledge, the first study to offer springboard of the relation between QVD and EM in the financial services sector. Third, we also extend the recent work of Alotaibi and Hussainey (2016), Mersni and Othman (2016), and Moumen et al. (2016) on earnings manipulation and voluntary disclosure by providing new evidence about the effect of QVD on EM in emerging economy context. Our findings are expected to assist regulators, policy-makers, market participants, and academics in appreciating the function and the importance of QVD dimensions in mitigating EM.

The rest of the paper is organised as follows: Section two develops the theoretical framework and literature review, while Section three describes the research method used. Next, in the finding section, the main results, additional analysis, and robustness tests are outlined. The final section presents the main discussion, implications, and limitations.

2. Literature Review and Hypotheses Development

Prior literature considered EM as a form of agency cost since directors engage in opportunistic behaviours by providing inaccurate information that does not reflect the firm's economic reality (e.g., Kwak et al., 2009; Leventis et al., 2012; Othman and Mersni, 2014). The issue of information asymmetry allows managers to manipulate earnings to gain personal benefits since their compensation might directly depend on the reported results. It might also increase job security at shareholder's expense (Alzoubi, 2016; Chong et al., 2012; Darjezi, 2016). In the banking industry, considerable discussion and criticism concluded that earnings manipulation and executive compensation are some of the main reasons for their financial crisis from 2007 to 2008 (Alhadab and Al-Own, 2019).

In contrast, VD transcends mandatory disclosure requirements and represents management's free choices to provide relevant information in their annual report to enable users to make informed decisions (Meek, Roberts, and Gray, 1995, p. 555). Two perspectives have been suggested by previous research to describe the impact of QVD on EM, namely, opportunistic and long-term perspectives. The long-term perspective enables firms to reduce information asymmetry and improve financial decisions in capital markets by signalling high-quality

information (Uyar, Kilic, and Bayyurt, 2013). Given the proposition of a positive correlation between EM and information asymmetry, signalling theory assumes that information asymmetry is mitigated by disclosing high-quality information voluntarily (Harun et al., 2020). Managers may avoid the issue of asymmetric information through voluntarily signalling credible and relevant (high-quality) information to the market (Watts and Zimmerman 1978). In this regard, loan loss provision (LLP) is utilised by bank' managers as a signalling approach to convey a signal of conservatism and confidence about their financial strength (Ahmed et al., 1999). Gray (2004), for example, reported that managers of highly performed and financially stable firms have a desire to distinguish themselves from poorly performed firms by extending (signals) high- quality information voluntarily to communicate successfully.

The legitimacy theory, on the other hand, argues that firms disguise their opportunistic behaviour through disclosing information voluntarily (Li et al., 2012; Parvin et al., 2020). Li, Mangena, & Pike (2012) argued that managers might voluntarily reveal information to shade their opportunistic behaviour and to protect themselves against any possible reaction from stockholders. The view of legitimacy theory proposes that "individual actions are substantially related to their self-interest, and respectively individuals may rise their wealth by engaging in EM practices" (Jensen & Meckling, 1976). Consequently, this perspective suggests a substitutive association between EM and QVD, in the sense that VD is used as a legitimate mechanism to compensate for poor financial reporting quality (Francis et al., 2008; Martínez-Ferrero et al., 2015).

Prior studies examined the effect of VD on EM, although their results have been proven to be inconsistent. For example, Rezaee and Tuo (2019), Katmon and Al Farooque (2017) and Alzoubi (2016) found that VD is negatively associated with EM. Conversely, Kasznik (1999), Patten and Trompeter (2003), Prior et al. (2008) have reported contradictory evidence, as they found that VD is positively correlated with EM.

Specifically, Rezaee and Tuo (2019), investigated the effect of the quality and quantity of governance, social and environmental disclosure on earnings management in the context of culture and corporate ethical value. It was found that the quantity (level) of sustainability disclosure in the USA non-financial firms is negatively correlated with earnings manipulations. They also found that the quality of sustainability disclosure strengthens the negative association between the sustainability level of disclosure and earnings management. In the UK context, however, Katmon and Al Farooque (2017), examined the influence of internal corporate

governance on the quality of disclosed information and earnings manipulations using three different indices to capture the quality of disclosure. These indices are Forward-Looking Score, Investor Relation Magazine Award and the analyst forecast accuracy. They conclude that all three proxies of disclosure quality have significantly and negatively influenced corporate engagement in earnings management, whereas corporate governance mechanisms seem to have an insignificant influence on earnings manipulations in the UK setting. In the Middle Eastern countries, Alzoubi (2016) investigates the relationship between internal corporate governance mechanism and earnings management practices among 62 companies listed on the Amman Stock Exchange. The study's findings reveal that managerial ownership, external blockholder, institutional ownership, foreign ownership and family ownership have an inverse relationship with EM.

Also, Alzoubi (2016), has investigated the impact of the quality of disclosure on earnings manipulation among non-financial companies registered in the Jordanian Stack Exchange using the disclosure index of Beattie et al. (2004). The study points out that the quantity of disclosure (level) can restrain earnings manipulation, which in turn expected to improve the quality of annual reports in the Jordanian context.

On the contrary, Prior et al. (2008) and Patten and Trompeter (2003), tested the association between earnings manipulation and corporate social responsibility (CSR) and environmental disclosure among non-financial firms over 26 different developed countries. These studies utilised a disclosure index to capture the level of disclosed information and found a positive relationship between earnings manipulation and corporate disclosure, which in turn negatively impact the companies' financial performance. From a managerial perspective, this empirical evidence suggests that VD seemed to be employed by managers as a method to reduce firm's exposure, political and social pressures (Patten and Trompeter, 2003); thus, managers might attempt to opportunistically disclose more information voluntarily to cover any misconduct such as earnings manipulation (Ullah et al., 2019). In the same manner, a study conducted by Kasznik (1999) aims to investigate the effect of information disclosed voluntarily on EM among 366 US-listed companies during the period 1987 – 1991. The study's finding reveals that voluntary disclosure is positively and significantly affected EM practices. This result suggests that directors who are overstated earnings are very likely to shift announced earnings aiming to meet their anticipation. Similarly, several studies have investigated the relationship between the quantity of CSR and earnings manipulation on non-financial sectors (Muttakin et al., 2015; Prior et al., 2008; Patten and Trompeter, 2003). Their findings show that the level of

CSR and EM practices are positively and significantly related. These studies confirm that managers who tend to publish high level of CSR are motived to practice EM.

Prior studies appeared to have a number of limitations. First, the majority of previous VD-to-EM studies were limited to examining the effect of the level of information provided voluntarily on EM practices without considering the spread and usefulness of the information disclosed. In this regard, Beretta & Bozzolan (2008) state that the level of VD is not the only approach of measuring the quality of disclosed information as considering other matters such as the type and variety of the disclosed items became a more dominant proxy for the quality of VD. In addition, Botosan (2004) asserted that the notion of QVD should be consistent with the conceptual framework of IFRS. This will find an acknowledged explanation of disclosure quality, in turn, could increase the quality of disclosed information and then enhancing decisions making processes (IFRS 2010). Second, a previous study focusing on examining the QVD-EM nexus in the banking sector is virtually non-existent. Third, the vast majority of QVD-to-EM studies have been devoted to investigating the context of developed economies (e.g., Francis, Nanda and Olsson, 2008; Husted and De Sousa-Filho, 2018; Lobo and Zhou, 2001) with a little attention has been paid to bringing up contextual insights from developing economies settings. Our study contributes to the ongoing debate on the possible effects of QVD on EM in several ways. First, we extend the body of existing literature by developing a multidimensional framework to measure the quality of VD. Second, we add to the literature by considering the impact of the quality along with the quantity of VD on EM. Third, our study addresses the dearth in prior studies by examining the QVD-EM nexus in the banking sector. Finally, our research paper brings up new empirical evidence on the QVD-EM link from an under-research context, namely the MENA region, yet of a major economic and political importance to the global economy.

Managers of institutions operate in the MENA region implement social accountability approach, which is associated with anti-manipulative behaviour, enhance the transparency of the disclosed information. Social accountability is considered as the institutionalised mechanism of control, which impacts both firm and individuals' attitudes (Lassoued, Attia, & Sassi, 2018). Similarly, Brusca et al. (2016) indicated that directors of firms should disclose valuable information to be accountable to the society and enhancing their reputation in response to any potential outside stress performed by regulatory bodies. Since the full disclosure is linked to social accountability, society has the right to receive high-quality information regarding the company's operations. In the same manner, Haniffa and Hudaib (2002), conclude

that high-quality disclosure could assist directors in performing their accountability to society and helping stakeholders to take an accurate decision.

Signalling theory argues that directors are motivated to reveal extensive information since accounting information is considered to be a signal to the capital market (Spence, 1973). Furthermore, signalling theory assumes that managers in the banking sector are very likely to used loan loss provision (LLP) as a signal instrument to transfer bank's particular information to stakeholders, and therefore, send positive signals to stakeholders regarding their financial strength (Ahmed et al., 1999; Darjezi 2016). Based on the signalling theory, bank managers are tended to raise LLP to signal valuable information regarding their upcoming earnings, consequently, enhancing shareholders' confidence about the bank's earnings (Ahmed and Courtis 1999). Banks with a low level of performance are expected to be involved in EM practices through decreasing LLP to increase the bank's earnings. This approach could minimize the opportunity of being reviewed by regulatory agencies aiming to maximums management compensation. In this regard, Alhadab and Al-Own (2019) conducted a study that aims at examining the impact of equity incentives on earnings management using loan loss provisions (LLP) among 39 European banks. Their results show that managers of European banks widely use income-increasing earnings management by discretionary loan loss provisions, and that is partly motivated by the compensations of manager's. The acceptably explanation of this argument is that managers are willing to send a signal that includes false information related to decreased or increased LLP to meet their expectations (Ashraf et al., 2014).

Besides, signalling theory suggests that accurate, complete, and reliable VD decreases information asymmetry between internal and external users (Katmon and Al Farooque, 2017). Since managers could reduce the asymmetric information by releasing high-quality information to the market (Miller, 2002; Watts and Zimmerman, 1990), it is expected that companies which provide QVD are less likely to be involved in earnings manipulation. Consequently, based on the results of previous studies that indicate a possibility of a negative association between QVD and EM (e.g., Rezaee and Tuo 2019; Katmon and Al Farooque 2017; and Alzoubi 2016; Lobo and Zhou 2001) and in the light of several of theoretical arguments primarily stemmed from Legitimacy theory and signalling theory, this study proposes the following hypothesis.

> **H_1**: Ceteris paribus, there is a statistically significant and negative relationship between the QVD and EM practices in the context of MENA banks.

3. Data and methodology

The dataset used in our study was collected from banks listed in MENA stock exchanges and covered ten years period spans from 2006 to 2015 to ensure a consistent and adequate number of observations. The study started in 2006 due to the adoption of Basel II in 2005 across banks operate in MENA countries (Elamer et al., 2020). The selection of commercial banks in MENA countries is of a significance stemming from their considerable financial influence in the context of an emerging economy at large (Bourgain et al., 2012). For example, according to their credit levels and banking assets, MENA countries have been ranked second in terms of banking sector development (Ben Rejeb Attia et al., 2019). Similarly, banks operate in the MENA region have embraced Basel ii regulations that attempt to enhance the transparency and credibility of disclosed information Likewise, a series of reforms have been embraced by policy-makers in the majority of MENA countries to build a solid, institutional and legal framework which in turn attracts external fund and boost investors' rights protection (Buallay et al., 2020). More specifically, enhancing the supervision, regulation and increasing transparency of banks are considered as a sample of the reforms that banks should undertake through imposing provisions for the information disclosed and implementing high-quality corporate governance mechanism that is in line with the international standards (Elfeituri, 2018). In light of these characteristics, the banking system across MENA countries is heavily required by the adopted liberalization policies to improve the quality of reported financial and non-financial information in corporate annual reports (Kamla, 2007).

Our data have been carefully collected from annual reports, the Orbis Bank Focus database, and the OSIRIS database to avoid any data unavailability and inconsistencies. The whole population of 149 listed commercial banks in MENA countries is used as the initial sample size. To ensure the generalisation of the study findings, we excluded those banks characterised with incomplete data, government banks, cooperative banks, Islamic banks as they have different regulatory requirements compared to commercial banks. We also filtered the sample by covering the period of Pre- and post-banking crisis and the adoption of Basel II in 2005 across banks operate in MENA countries (Elamer et al., 2020). Thus, after applying the adopted sampling criteria, the final sample of our study is ended up with 106 commercial banks selected from 17 MENA countries with a total number of 1,060 bank-year observations. Table I presents the banks' specifications by country.

INSERT TABLE (I)

3.1 Measurement of EM

Following the prior literature (e.g., Abdelsalam and El-Komi, 2016; Othman and Mersni, 2014; Elleuch and Taktak, 2015), we measured EM based on loan loss provision using Kanagaretnam et al. (2004) model. This model is a sector-specific approach and considered as the most reliable and robust approach in the banking industry that enables us to distinguish between non-discretionary and discretionary accruals (Abdelsalam et al., 2016). Unlike other EM models, Kanagaretnam et al. (2004) model utilise LLP that represents the largest portion of accruals in the banking industry (Lobo & Zhou, 2001) and plays a major role in the manager's decision to manipulate earnings (Beaver & Engel, 1996).

Our study employed the following cross-sectional equation in the estimation of the discretionary part of LLPs:

$$LL\text{-}Ps_{it} = \beta_0 + \beta_1\ NP\text{-}L_{it}\text{-}_1 + \beta_2\ \Delta\ NP\text{-}L_{it} + \beta_3\ \Delta\ T\text{-}L_{it} + \varepsilon_{it} \qquad (A)$$

This model consists of a non-discretionary component of loan loss provision (ND_LLP)[1]. The ND_LLP can't be directly achieved. However, it is obtained via the changes in the bank business condition. Following Kanagaretnam et al. (2004) and Kwak et al. (2009), we estimated ND_LLP through enclosing several variables that reveal the level of loan loss portfolios such as non-performing loans, total loans, and changes in non-performing loans. Therefore, ND_LLP is estimated by utilising the equation (A) and evaluation gained via its predicted (β_0 β_1 β_2 β_3) coefficients (see equation B). The discretionary loan loss provision (D_LLP) relies on the predicted LLP estimation error obtained through the residual of equation (A). The final estimation process stage is to calculate the D_LLP through the difference between the estimated ND_LLP and D_LLP (See equation C). In line with previous studies (i.e., Abdelsalam and El-Komi, 2016; Grougiou et al., 2014; Jackson., 2018), we used D_LLP as a proxy of earnings management as it is directly linked to managers decisions in manipulating earnings through underestimating or over-estimating LLP.

$$ND\_LLP_{it} = \beta_0\hat{}+ \beta_1\hat{}\ NP\text{-}L_{it}\text{ -1} + \beta_2\hat{}\ \Delta NP\text{-}L_{it} + \beta_3\hat{}\ \Delta T\text{-}L_{it} \qquad (B)$$

$$D\_LLP_{it} = L\text{-}LP_{it} - ND\_LLP_{it}. \qquad (C)$$

where:

[1] For further information refer to Kanagaretnam, K., Lobo, G. J., & Mathieu, R. (2004). Earnings management to reduce earnings variability: Evidence from bank loan loss provisions. *Review of Accounting and Finance, 3*(1), pp.128-148.

$LL\text{-}Ps_{it}$: is calculated as total loan loss provisions for bank i at year t, divided by beginning total loans, $NP\text{-}L_{it}\text{-}1$: is the beginning balance of the non-performing loans for bank i at year t divided by the beginning, total loans, $\Delta NP\text{-}L_{it}$: is calculated as the change in the value of non-performing loans for bank i at year t, divided by the beginning, total loans, Δ $T\text{-}L_{it}$: is measured as the change in the value of total loans for bank i at year t, divided by the beginning, total loans, ND_LLP_{it}: is the non-discretionary loan loss provisions for bank i at year t, D_LLP_{it}: is the discretionary loan loss provisions for bank i at the year t.

3.2 Measurement of QVD

In the initial stages of conducting the current study, we adapted the disclosure framework of Beattie et al. (2004), which consists of the disclosure quantity and the spread. We then expanded this framework to capture three disclosure dimensions, which are (i) quantity (how much and what information is voluntarily reported), (ii) information disclosure spread (concentration and coverage of information), and finally, (iii) the usefulness of the disclosed information. Our expanded framework is based on these three dimensions and provides evidence regarding banks' QVD, which allows both qualitative and quantitative features of the disclosed information to be captured. The following sections explain how each dimension of the QVD framework is measured.

3.2.1 Quantity Dimension

This dimension represents the VD amount that is adjusted by business size. Previous studies have suggested that disclosure levels are affected by business complexity and size (e.g., Beretta and Bozzolan, 2008; Platonova, Asutay, Dixon, and Mohammad, 2018; Rezaee, and Tuo, 2019). Since our sample covers one industrial type (conventional banks), the quantity dimension (ST-R_Q) is measured by considering the variation in size of the banks to provide an effective evaluation of quantity VD. To capture the quantity of VD in annual reports, content analysis was applied. We constructed a checklist consisting of 88 items (see Appendix A). The selection and development of the categories for the classification of content is an important element of conducting a content analysis technique. Particularly, our study followed Menicucci (2013) and Maali et al. (2006) to develop a comprehensive checklist that contains items relevant to MENA banks. The number of words was employed to measure ST-R_Q in the current study. We used the relative number of words adjusted by bank size to capture the ST-R_Q dimension since this external factor has been found to affect the level of disclosure. The standardised OLS estimation of the number of words (how much) on bank size was employed as the quantity dimension proxies. Following Beretta and Bozzolan, (2008), we obtained the

R_Q_{it} by excluding the residual (estimated disclosure) from the actual total frequency of disclosed items. Then the maximum and minimum value of R_Q_{it} form the overall sample are used to achieve the quantity dimension finally. We adopted the following standardised formula[2]:

$$\mathbf{ST\_R\_Q}_{it} = \quad 1 - \frac{\mathbf{Max\_R\_Q}_{it} - \mathbf{R\_Q}_{it}}{\mathbf{Max\_R\_Q}_{it} - \mathbf{Min\ R\_Q}_{it}}$$

Where:

$ST\_R\_Q_{it}$ = standardised relative quantity index for the bank i at year t.

R_Q_{it} = is the relative quantity index, which is the residual for the banks *i* at year *t* that obtained after controlling the size of the bank.

3.2.2 The Spread Dimension

The spread of VD is the second dimension used in this study since it helps to evaluate whether the voluntarily disclosed information meets the needs of various stakeholders. The functions of VD dispersion (DI_S) and VD coverage (CO) were used to determine the dimension of spread. We measured CO as the proportion of VD items reported by the banks in the annual reports from the total number of VD items contained in the index. The range of CO is between 1 and 0. The highest value (1) is assigned if each of the topics (sub-topics) in the checklist is disclosed in the bank's annual report, whereas the lowest value (0) is assigned with non-disclosed topics. The following equation is used in measuring CO:

$$CO_{it} = \frac{1}{st} \sum_{j=1}^{s} IN\_F$$

Where, IN_F = 1 if bank *i* provides information in the annual report about item *j* and otherwise 0, and *s* is the number of subcategories. We used DI_S as an indication of disclosed items' concentration within the disclosure index. We also used the frequency of items disclosed from index A to obtain the concentration of disclosed items. This technique is adopted to examine whether bank managers focus (giving signals) on specific items or provide a variety of information about all items involved in the index. The following is the DI_S equation:

$$DI\_S_{it} = \quad 1 - \sum_{j=1}^{n} \quad P\text{-}j^2$$

Where P-j = proportion of disclosed item *i* measured by the item disclosure frequency in category *j*. In the current study, 0 is assigned as a value of DI_S if all VD words fall into one

[2] Further information about the measurement of quantity and spread dimensions can be found in *Beretta, S., & Bozzolan, S. (2008). Quality versus quantity: the case of forward-looking disclosure. Journal of Accounting, Auditing & Finance, 23(3), 333-376.*

category, and a higher value is assigned when VD words are spread between categories. The quality of disclosure increases in line with the DI_S index value. Larger CO and DI_S indices indicate a higher information spread (SP_R). Thus, the average of DI_S and CO is used as a proxy for the spread dimension:

$$SP\_R_{it} = \frac{1}{2} (DI\_S_{it} + CO_{it})$$

3.2.3 The Dimension of Usefulness

Using the five fundamental qualitative characteristics of IFRS (2010): "comparability" "relevance" "understandability", "faithful representation", and "timeliness", we have innovatively developed an index of disclosed items to measure VD usefulness. To evaluate the scores of each item, we employed rating scales with five points for all qualitative characteristics except timeliness, which was measured by using the natural logarithm of the number of days between the year-end and the auditor's signature on the reported post-year-end calculation (see Appendix B). In line with Alotaibi and Hussainey (2016), we measured usefulness by using the weighted method as follows:

$$US\_EF = \frac{1}{5} (\text{Comparability} + \text{Relevance} + \text{Understandability} + \text{Faithfulness} + \text{Timeliness})$$

Finally, the average of the three dimensions provides the quality of the information disclosed voluntarily. The QVD is defined as follows:

$$QVD = \frac{1}{3} (ST\_R\_Q + SP\_R + US\_EF)$$

Several steps were taken to ensure the reliability and validity of QVD measurement. Firstly, to improve validity, we carefully developed our checklist based on previous studies. Secondly, the initial index was independently reviewed by four experts in the area of QVD, who offered their opinion on the ambiguities found in the review. To improve the reliability of our measurement, firstly, we used multiple coders to score the research instrument (Alotaibi and Hussainey 2016). We, secondly, discussed and resolved the discrepancies and any emerging problems accordingly. Thirdly, we used a sample of annual reports to compare the disclosure coding scores among coders. Fourthly, to validate the QVD model, we verified whether QVD is related to market reactions. Previous studies documented that the market reacts positively to QVD (Cahan et al., 2016; Nekhili et al., 2017), which signals the high quality of information disclosed by banks. Therefore, the market-based value (MBV) was employed to indicate the

market reaction; it is calculated using the aggregate of both earnings per share (EPS) and Tobin's Q[3].

The untabulated findings of the panel data regression illustrate that QVD has a positive and significant association with MBV at 1 percent level, and the coefficient is equal to 0.1257. This finding suggests that a VD of high-quality information is more likely to help market participants to predict banks' earnings in the subsequent year. Thus, we provide experimental evidence to support the validity of the developed framework.

4. Empirical model

Following prior studies, we used several control variables that may affect EM and QVD (see, e.g., Abdelsalam and El-Komi, 2016; Alotaibi and Hussainey 2016; Moumen et al., 2016; Nekhili et al., 2017). In particular, the following variables are considered: bank size, growth, leverage, profitability, liquidity, credit risk and capital adequacy ratio, external financing (L-D), independent board of directors (I_BD), board size (B_Z), board expertise (BD_EX), duality (D_U), board gender diversity (B_GD), board meeting (B_M), independence of audit committee (I_AC), size of the audit committee (A_CZ), audit committee meetings (A_CM), the expertise of audit committee members (A_CEX), external audit (Big_4), gender diversity of audit committee members (A_CG), managerial ownership (M_OS), and block-holders (B_H). Following Abdelsalam and El-Komi (2016), a dummy variable is used to control country-specific effects. It is related to those countries that experienced political issues during the years from 2011 to 2015. A value of 1 is assigned if a bank is based in Tunisia, Egypt, Yemen, Syria, or Iraq and zero otherwise. Additionally, we used a dummy variable to control for the difference in economic environments among MENA countries. A value of 1 is given for Gulf Cooperation Council (GCC) countries and zero otherwise. We used the following model (1) to examine the effect of QVD on EM[4]:

$$EM\_LLP_{it} = f(\mathrm{QVD}_{it};\ \mathrm{Corporate\ Governance}_{\mathrm{it}};\ \mathrm{Bank\ characteristics}_{\mathrm{it}} + \mathrm{country\ effects}_{\mathrm{it}}) \quad (1)$$

Following prior studies (Katmon and Al Farooque, 2017; Rezaee and Tuo, 2019), we utilised the Chow test to compare between panel and pool regressions. The untabulated result shows that F statistics is highly significant at 1% level, confirming the suitability of panel data

[3] Following prior studies, Tobin's Q is measured as the market to book value of equity, whereas EPS is calculated as net income scaled by the total number of outstanding ordinary shares (Cahan et al., 2016; Nekhili et al., 2017).

[4] The Model Variables' Definitions and Measurements are presented in Appendix (C)

regression. In the second phase, we used the Hausman specification test to compare between random and fixed effects regression, and we found the random effect is the most suitable for our sample as P value was insignificant (P= 0.1109).

5. Results and Discussion

From the descriptive statistics presented in Table II, the QVD standard deviation and mean values for the entire sample are 0.0530 and 0.5774, respectively and are consistent with those results reported by Michelon et al. (2015) and Lim et al. (2017), that suggest an averages value of QVD varies between 56% and 57% among the UK and Australian listed firms, respectively. However, this finding is higher than those of Ghosh (2018), who reported that the level of disclosure is about 20% among MENA banks during the period 2000-2012. This discrepancy can be justified by the variance in the technique utilized to measure the disclosed information and to the investigated period as most MENA banks started adopting IFRS in post-2006 (Elnahass et al., 2014). The mean value of EM_LLPs is 0.1115, with a high degree of dispersion. Nevertheless, the findings show that the EM_LLP value across MENA banks is higher compared to those of Abdelsalam and El-Komi (2016), who reported 0.002 to be the average value of EM among MENA banks. The observed variation in the results of both studies may be attributable to the EM measurement differences. Unlike Abdelsalam and El-Komi (2016), we used the absolute EM value instead of using signed discretionary accrual value since the objective of our study is to examine the extent of EM and not the direction.

The correlation among the independent variables is reported in Table III. The standard errors are likely to be inflated by the collinearity issue between the Big 4 and A_CEX, which may cause some variables to be statistically insignificant. In line with Gujarati and Porter (2009), A_CEX was omitted due to the high level of correlation and less significant relationship with the EM proxy. The correlation coefficients of other explanatory variables are below the conventional threshold, meaning that the issue of multicollinearity among our study variables does not exist.

5.1 Multivariate Analysis

The main findings of our study are reported in Table IV and show a negative association between EM_LLP and QVD, which is in line with those of some previous studies (Iatridis and Kadorinis, 2009; Lobo and Zhou, 2001; Sanjaya and Young, 2012; Tariverdi et al., 2012). Our result suggests that banks with high QVD are more likely to mitigate EM practices. This

evidence supports the contention that the increased level of transparency reduces asymmetric information expectations among stakeholders. This result supports the long-term perspective, suggesting that high QVD is provided by banks to minimise information asymmetry and boost owners' confidence regarding firms' future and current performance (Akisik and Gal, 2011). Furthermore, our outcomes are consistent with the perspective of signalling theory, suggesting that banks QVD mitigates information asymmetry by signalling superior performance to the information users (Prado-Lorenzo et al., 2008; Miller 2002). Thus, the current study accepts **H_1** that QVD has a negative impact on EM.

In respect to MENA countries, our results appear to be well substantiated by those described by Ben Rejeb Attia et al. (2019) and Gerged et al. (2020), signifying that involving in any type of unethical practice such as EM may lead to imposing penalization by stakeholders, and therefore, bank directors are very likely to provide high QVD to mitigate any potential fine and to be recognised as ethically accountable. Noticeably, the quality of disclosure has spectacularly raised which could be attributed to the governments' role in most of MENA region to improve disclosure quality and due to the series of reforms adopted by policy-makers to set up a legal and institutional framework aiming to boost investor protection and attracting foreign direct investments (Kamla, 2007). Most importantly, banks in MENA countries are required to implement corporate governance codes to be in line with the internationally recognized standards. Therefore, implementing reforms and imposing provisions for the disclosure have dramatically improved supervision, regulation and transparency (Turk-Ariss, 2009). In light of these characteristics, banks operate in the MENA region seem to be torn by the growing demand to promote disclosure quality, which is imposed by liberalization policy (Kamla, 2007).

This outcome provides important implications for regulators and standard-setters, enabling them to continually improve the guidelines and framework to assist banks in providing high QVD. It also offers significant implications for bank managers in the MENA region by paying more attention to the quality of voluntary disclosure dimensions.

INSERT TABLE (II)

INSERT TABLE (III)

Regarding control variables, we found a negative association between EM and the Big 4 auditors, indicating that Big 4 audit firms are effective in constraining the occurrence of EM

practices of banks in MENA countries. This result corroborates the findings of Kanagaretnam et al. (2010) and Lin and Hwang (2010), who confirmed the negative impact of contracting with a Big 4 auditing firm on the engagement in EM. Furthermore, the B_H has a negative relationship with EM at the 1% level, indicating that banks with a higher B_H ratio found to have a lower level of EM. The result is in line with prior studies, which have shown that B_H with at least a 5% equity stake can play a key role in the mitigation of managerial opportunism (Shleifer and Vishny, 1997). Consistent with Ding and Zhang (2007) and Klein (2002), we found that B_H is negatively related to EM.

Concerning bank characteristics, bank size (BSIZE) has a negative relation with EM. Previous studies (Hadani et al., 2011; Kim et al., 2012; Lin and Shen, 2015; Scholtens and Kang, 2013) found similar findings as large-sized banks are less likely to manipulate their earnings figures as compared with smaller banks. This is due to an increase in the monitoring mechanism employed by regulators and their focus on potential EM-related issues (Kim et al., 2012). Also, the coefficients of growth and L_IQ have a negative effect on EM, implying that due to increased monitoring, banks with higher growth opportunities and greater liquidity are unlikely to engage in EM (Cornett et al., 2009). Furthermore, our results reveal that the external financing proxy (L-D) is negatively associated with EM, suggesting that managers manipulate earnings to attract external funds. They engage in EM by reporting low LLPs, thus decreasing the perceived risk and increasing the reported earnings (Othman and Mersni 2014). In contrast, the regression results reveal that none of the board characteristic variables, leverage, profitability, credit risk, and capital adequacy ratio, have any influence on banks' involvement in EM in the MENA region.

INSERT TABLE (IV)

6. Additional analysis

We check the robustness of the primary findings by employing the quantity of voluntary disclosure as an alternative proxy for QVD to examine whether EM is reduced or enhanced by using the new proxy. We argue that, despite the inseparable nature of the quantity and the quality of voluntary disclosure, the mere quantity evaluation of voluntary disclosure activities is unlikely to improve market decisions. Following prior studies, we used content analysis to measure the quantity of voluntary disclosure (QD) and repeated the main analysis (Belgacem and Omri, 2015; Haniffa and Cooke, 2005). The findings of the additional analysis are reported in Table V. We found that the quantity of disclosure (QD) has an insignificant effect on EM

compared to QVD, which has a significant and negative influence on EM. Our findings support the main hypothesis, showing that it is the quality rather than the QD, which is very likely to enhance the financial reporting quality by reducing EM.

INSERT TABLE (V)

Furthermore, to achieve the confidence of our analysis that the main outcome does signify the effect of QVD on EM practice, we examine whether the influence of QVD on EM differs between the high QVD and low QVD banks. Using the median value of QVD, we split the sample into two sub-sets. The first sub-set consists of "high QVD banks," whose QVD is above the median value, and the second sub-set is identified as "low QVD banks" with QVD below the median value. Table VI shows that banks associated with high QVD are less likely to engage in EM, although EM is insignificantly related to QVD in low-QVD banks in the MENA region. This means that high-QVD banks are less likely to manipulate their earnings figures as compared with low-QVD banks (Lin and Shen, 2015; Scholtens and Kang, 2013). This implies that high-QVD banks are mostly large-sized ones and facing stronger monitoring mechanisms employed by regulators to prevent their engagement in any potential EM-related issues (Kim et al., 2012).

INSERT TABLE (VI)

7. Robustness test

Our study employs several alternative analyses to examine the robustness of our main findings. Firstly, we used an alternative EM measure to determine the robustness of the primary findings to various earnings manipulation measures. Specifically, we use Jones' model, modified for banking institutions (Yasuda et al., 2004), We estimated the total accruals (TO_AC) as the variation between net income and operating cash flows.

$$TO\_AC_{it} = NE\_I_{it} - OC\_F_{it}$$

Following Abdelsalam et al. (2016) and Yasuda et al. (2004), the cross-sectional variation is utilised. We used the non-discretionary of equipment and premises expenses alongside with the changes in operating income to measure non-discretionary accruals. And therefore, the residual from equation (D) is utilised as the discretionary portion of the total accrual since it is directly related to managerial discretion. In line with Abdelsalam et al. (2016), all variables are divided by the value of lagged total assets to avoid heteroscedasticity.

$$\frac{TO\_AC}{TO\_A_{t-1}} = \beta_0 \frac{1}{TO\_A_{t-1}} + \beta_1 \frac{\Delta\, O\_IN_{it}}{TO\_A_{t-1}} + \beta_2 \frac{BP\_E_{it}}{TO\_A_{t-1}} + \varepsilon_{it} \qquad \text{(D)}$$

Where:

TO_AC= is the total accruals estimated from the difference between net income and operation cash flows. TO_A= Total assets. Δ O_IN= Change in operating income. BP_E= Bank's premises and equipment. Consequently, we repeated the main empirical analyses (see Table VII) using the alternative measure as a proxy of EM.

The results are similar to the main findings in Table IV. This means that our primary results are robust to alternative EM proxies. Secondly, we tested the influence of each dimension on both measurements of earnings management separately. Table VIII reveals that the ST_RQ, which represents the quantity dimension of disclosed information, has an insignificant relationship in reducing EM in both models. On the other hand, the spread and usefulness dimensions of disclosed information have negative and significant associations in mitigating EM in both models. These results are supportive of the main outcomes and consistent with the argument that the quality of disclosed information is not directly linked with the level (quantity) (Beattie et al., 2004). However, the quality of information is more likely to be linked to both the spread and the usefulness of the disclosed information. Furthermore, we re-run the model without the additional explanatory variables, which might have influenced the main relationship between EM and QVD. The findings in Table IX support the main findings. It also confirms that the spread and usefulness dimensions are negatively and significantly attributed to EM, whereas, the quantity dimension has an insignificant association with EM. These results are corroborated with the debate that the quality of disclosed information is unlikely to be associated only with the level of disclosed information but also to the spread and the usefulness of this information (Beretta and Bozzolan, 2008; Beattie et al., 2004).

Finally, previous studies have suggested that managerial decisions affect both VD and EM, which will possibly lead to endogeneity issues (Harris et al., 2019; Rezaee and Tuo, 2019; Wang et al., 2016). Following Elnahass et al. (2018), we conducted the Durbin-WuHausman test to examine the existence of an endogeneity issue in our model. The findings of Durbin-WuHausman is 0.5743. Although the endogeneity issue between the dependent and independent variable does not exist, the current study treated QVD as an endogenous variable, meaning that an endogeneity analysis will control the result. The current study used instrumental variable estimation (lagged QVD) to mitigate the endogeneity (Choi et al., 2013; Harris et al., 2019; Moumen et al., 2015). The two-stage least squares method was used to

reassess the key findings (see Table X). The outcomes are qualitatively in line with those results reported earlier in Table IV. Overall, our test confirmed the robustness of the main results and is not affected by the potential existence of endogeneity problems.

INSERT TABLE (VII)

INSERT TABLE (VIII)

INSERT TABLE (XI)

8. Conclusion

This paper investigates the influence of QVD on EM among a sample of 106 commercial banks listed in 17 MENA emerging economies from 2006 to 2015. Two opposing viewpoints have been proposed by prior studies to explicate the association between QVD and EM. One view suggests that banks issue VD to reduce information asymmetry and uncertainty risk, thereby improving investment decisions in capital markets. The other view is based on the premise that the banks' managers may disguise their opportunistic (EM) behaviour by disclosing more information voluntarily. One main gap that is not addressed by previous studies relates to the methods used to evaluate VD. Our study contributes to the extant literature by distinctively developing a multidimensional proxy for QVD and examining whether QVD can constrain EM. We combined three dimensions to measure QVD: the quantity, spread and usefulness of disclosed information. Using the OLS regression model, we found that QVD has a negative impact on EM. Our study adds to the ongoing debate on the possible effects of QVD on EM by providing new empirical evidence suggest that banks with QVD are, in fact, less likely to manipulate earnings, and instead will offer more transparent and reliable information in the context of developing economies generally and the MENA setting specifically. This evidence is in line with the perspective of signalling theory. Additionally, the influence of the quantity dimension of the disclosed information has an insignificant relationship in reducing EM, whereas, the spread and usefulness dimensions of disclosed information have a negative and significant association with EM. These outcomes support the argument that the quality of the disclosed information is not directly linked with the level (quantity) of disclosure, though the quality of information is more likely to be related to the spread and the usefulness of the information.

This study offers several implications for bank managers, academics, and policy-makers. Firstly, it may help managers to appreciate the function and the importance of QVD in

mitigating EM. Secondly, for academics, our study provides suggestive evidence on the impact of QVD on EM; however, future research may need to consider the role of morality and ethical behaviour across different environments in reducing excessive risk-taking and constraining earnings manipulation. Finally, it provides insights for policy-makers and regulators to develop a framework or guidance that can help banks in providing high-QVD in the context of developing economies.

Although our results are robust to various measurements and the possible occurrence of endogeneity problems, there are a few limitations that should be acknowledged, which provides opportunities for future research. For example, our sample size is relatively small due to data accessibility issues. Likewise, the findings of our research might not be appropriate for non-financial sectors. These limitations provide a good opportunity for future studies to expand on our research by covering other developing economies and, thereby, enriching the understanding offered by this study.

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Table I Banks' Specialisation by Countries

No	Country	Number of banks	%
1	Algeria	0	0.00%
2	Bahrain	13	12.3%
3	Djibouti	0	0.00%
4	Egypt	5	4.7%
5	Iraq	2	1.9%
6	Iran	2	1.9%
7	Israel	3	2.8%
8	Jordan	12	11.3%
9	Kuwait	8	7.6%
10	Lebanon	2	1.9%
11	Libya	0	0.00%
12	Morocco	4	3.7%
13	Oman	4	3.7%
14	Qatar	6	5.7%
15	Saudi Arabia	9	8.5%
16	Syria	6	5.7%
17	Tunisia	7	6.6%
18	UEA	18	17%
19	West Bank and Gaza	4	3.7%
20	Yemen	1	1%
	Total	**106***	**100%**

***Number of banks in the study sample which are listed in MENA countries and have complete data across a ten-year period (2006–2015).

Table II Descriptive statistics

Variables	Mean	Median	S. D	Min	Max
Dependent Variable					
EM_LLP	0.1115	0.1025	0.1299	0.0004	0.9970
Explanatory variables					
QVD	0.5774	0.5750	0.0530	0.2380	0.7679
I_BD	0.2899	0.3000	0.2672	0	0.9090
B_Z	9.0150	9	2.9361	3	16
BD_EX	0.7867	0.4530	0.4097	0.2857	1.00
D_U	0.2476	0	0.4104	0	1.00
B_GD	0.0143	0	0.0350	0	0.3333
B_M	4.7216	5	2.3513	1	11
I_AC	0.4869	5	0.4279	0	1.00
A_CZ	3.0575	3	0.9478	2	6
A_CM	4.5603	4	1.0252	4	11
A_CEX	0.5462	0.5012	0.4980	0.3333	1.00
BIG_ 4	0.5773	1	0.4942	0	1.00
A_CG	0.0339	0	0.1812	0	0.3333
M_OS	0.0441	0	0.1255	0	0.8590
B_H	0.2976	0.2157	0.3151	6.68e-07	0.9838
BSIZE	7.6594	3.2900	8.0071	0.0003	32.8636
GWTH	0.1471	0.1247	0.1103	0.0001	0.9275
L_EV	0.8522	0.8784	0.1291	-0.4179	0.9676
P_ROF	0.4427	0.1726	0.4701	-0.4435	2.1250
L_IQ	1.4554	1.1381	4.0767	-2.3924	87.5589
CR	0.0308	0.0075	0.1591	-0.0915	4.1011
CAP	0.1548	0.1218	0.1692	0.0071	2.3688
LD	0.8324	0.8623	0.3889	0	4.8292
GCC	0.5471	1	0.4980	0	1
PT	0.1990	0	0.3994	0	1

Table III Correlation matrices analysis

	QVD	I_BD	B_Z	BD_EX	D_U	B_GD	B_M	I_AC	A_CZ	A_CM	A_CEX	Big_4	A_CG	M_OS	B_H	Bsize	GWTH	L_EV	P_ROF	L_IQ	CR	CAP	L-D	GCC	PT
QVD	1.0000																								
I_BD	-0.2223	1.0000																							
B_Z	-0.0494	0.2689	1.0000																						
BD_EX	-0.0841	0.4910	0.5513	1.0000																					
D_U	-0.0461	0.3275	0.4470	0.5761	1.0000																				
B_GD	0.0876	0.0612	0.2323	0.2070	0.1149	1.0000																			
B_M	-0.0426	0.4794	0.3901	0.5509	0.3403	0.0326	1.0000																		
I_AC	-0.2773	0.6164	0.3195	0.5351	0.3332	0.0991	0.4854	1.0000																	
A_CZ	0.0476	0.3816	0.4452	0.4303	0.2186	0.1661	0.5033	0.3560	1.0000																
A_CM	0.0159	0.3136	0.1239	0.2734	0.1374	0.0215	0.4572	0.3036	0.3467	1.0000															
A_CEX	0.0705	0.1953	-0.2129	0.0483	0.0138	-0.1395	0.1283	0.1204	0.0794	0.1415	1.0000														
Big_4	0.0466	0.2123	-0.1433	0.0769	0.0096	-0.1447	0.1701	0.1498	0.1386	0.1361	**0.8927**	1.0000													
A_CG	0.0674	0.1796	0.1818	0.0976	-0.0291	0.3101	0.0909	0.1379	0.3020	0.0245	0.0663	0.1182	1.0000												
M_OS	-0.0225	0.1410	0.2037	0.0890	0.0883	-0.0834	0.1270	0.1688	-0.0063	0.0977	-0.1600	-0.1526	0.0116	1.0000											
B_H	0.0574	0.2233	0.2481	0.2552	0.1313	0.0116	0.3020	0.2001	0.3827	0.1197	-0.0276	0.0250	0.0273	0.0676	1.0000										
Bsize	0.1674	0.1419	0.0020	0.2204	0.1298	0.0514	0.1893	0.1256	0.0817	0.1250	0.3353	0.2752	0.1573	0.0600	-0.0023	1.0000									
GWTH	-0.0927	0.0279	-0.1105	0.0248	0.0267	-0.0815	0.1185	0.0934	-0.0445	-0.0173	0.2772	0.2821	-0.0629	-0.0337	-0.0475	0.0839	1.0000								
L_EV	0.0755	-0.0571	0.0874	-0.0014	-0.0204	0.0832	-0.0559	-0.0787	0.0334	-0.0428	-0.2595	-0.2223	0.0546	-0.1334	0.0198	-0.0339	-0.4978	1.0000							
P_ROF	0.2930	-0.2368	0.1049	-0.0930	-0.0409	0.1032	-0.1368	0.2699	-0.2699	-0.0325	-0.0897	-0.2588	-0.2983	0.0189	0.0437	0.0861	-0.0856	-0.1361	1.0000						
L_IQ	-0.0357	0.0823	-0.0206	0.0094	0.0106	-0.0280	0.0097	0.0568	-0.0149	0.0447	0.0526	0.0461	0.0152	0.1341	-0.0178	0.0282	0.0634	-0.4638	-0.4638	1.0000					
CR	0.0172	0.0485	-0.0544	-0.0469	-0.0517	0.0383	-0.0601	-0.0106	-0.0075	-0.0620	0.0584	0.0520	0.0183	-0.0281	-0.0483	-0.0055	0.1478	-0.1742	-0.0260	-0.0163	1.0000				
CAP	0.0749	0.0096	-0.0521	-0.1335	0.0026	0.0594	-0.0756	-0.0133	-0.0580	-0.0592	0.2296	0.2225	-0.0053	-0.0344	-0.1080	0.0556	0.0906	-0.1173	-0.0829	0.0040	0.2161	1.0000			
L-D	0.1582	0.0559	-0.0152	0.0734	0.0521	-0.0021	0.1238	0.0404	0.0410	0.0261	0.2382	0.2054	0.1075	-0.1630	0.1151	0.0916	-0.0314	0.1045	0.1603	-0.1332	-.0.693	0.0364	1.0000		
GCC	0.0707	0.1926	-0.2143	0.0489	0.0144	-0.1400	0.1273	0.1174	0.0793	0.1414	0.5981	0.6905	0.0661	-0.1605	-0.0302	0.3389	0.2874	-0.2682	-0.2599	0.0536	0.0581	0.2292	0.2352	1.0000	
PT	-0.0170	-0.1464	-0.0452	-0.1845	-0.0217	0.0458	-0.1690	-0.1198	-0.1326	-0.1453	-0.5468	-0.4533	-0.0936	-0.0882	-0.0333	-0.3720	-0.1391	0.1508	0.1356	-0.0167	0.0062	-0.0765	-0.2676	-0.5479	1.0000

Table IV Regression result for the relationship between EM and QVD.

EM_LLP			
Variables	**Coef.**	**Z**	**P>|z|**
QVD	-0.1042	-3.38	0.001***
I_BD	0. 0168	1.04	0.298
B_Z	0.0014	0.94	0.346
BD_EX	-0. 0113	-1.14	0.252
D_U	-0. 0022	-0.20	0.840
B_GD	-0. 0483	-0.48	0.630
B_M	0.0004	0.29	0.771
I_AC	-0. 0153	-1.57	0.117
A_CZ	0.0053	1.33	0.183
A_CM	-0.0011	-0.33	0.739
Big_4	-0. 0313	-2.69	0.007***
A_CG	0. 0233	0.88	0.380
M_OS	-0. 0116	-0.29	0.770
B_H	-0. 0407	-2.68	0.007***
Bsize	-0.0026	-1.98	0.048**
GWTH	-0.1123	-4.08	0.001***
P_ROF	-0. 0101	-1.15	0.251
L_EV	-0. 0331	-0.98	0.326
L_IQ	-0.0013	-2.45	0.014**
CR	0.0176	1.17	0.241
CAP	-0. 0079	-0.44	0.661
L-D	-0. 0258	-3.12	0.002***
GCC	0. 0147	0.54	0.590
PT	0.0324	1.13	0.259
_Cons	0.2695	6.08	0.001

R-sq: 0.1554, Prob > Chi2: 0.001

******, **and * indicate the significance of coefficient at 0.01, 0.05, and 0.10 levels respectively.***

Table V Results of the relationship between EM and both QD and QVD

	Model 2		Model 1	
	QD		QVD	
Variables	**Coef.**	**Z**	**Coef.**	**Z**
QD/QVD	-0.0004	-1.50	-0.1042***	-3.38
I_BD	0.0168	1.04	0. 0168	1.04
B_Z	0.0015	0.97	0.0014	0.94
BD_EX	-0.0106	-1.07	-0. 0113	-1.14
D_U	-0.0037	-0.34	-0. 0022	-0.20
B_GD	-0.0350	-0.35	-0. 0483	-0.48
B_M	0.0007	0.47	0.0004	0.29
I_AC	-0.0160	-1.64	-0. 0153	-1.57
A_CZ	0.0049	1.23	0.0053	1.33
A_CM	-0.0011	-0.34	-0.0011	-0.33
Big_4	-0.0308***	-2.65	-0. 0313***	-2.69
A_CG	0.0180	0.67	0. 0233	0.88
M_OS	-0.0121	-0.30	-0. 0116	-0.29
B_H	-0.0382***	-2.49	-0. 0407***	-2.68
Bsize	-0.0025*	-1.86	-0.0026**	-1.98
GWTH	-0.1101***	-4.00	-0.1123***	-4.08
P_ROF	-0.0116	-1.11	-0. 0101	-1.15
L_EV	-0.0301	-1.04	-0. 0331	-0.98
L_IQ	-0.0013**	-2.44	-0.0013**	-2.45
CR	0.0180	1.20	0.0176	1.17
CAP	-0.0097	-0.53	-0. 0079	-0.44
L-D	-0.0268***	-3.23	-0. 0258***	-3.12
GCC	0.0162	0.57	0. 0147	0.54
PT	0.0353	1.19	0.0324	1.13
_Cons	0.2070	5.07	0.2695	6.08

Model 2, R-sq: 0.1355 Prob > Chi2: 0.001 **Model 1, R-sq: 0.1554, Prob > Chi2: 0.001**

******, **and * indicate the significance of coefficient at 0.01, 0.05, and 0.10 levels respectively.***
QD= quantity disclosure (total frequency of voluntary disclosure).

Table VI Results of the relationship between EM and high/ low QVD

EM_LLP

	High QVD		Low QVD	
Variables	**Coef.**	**Z**	**Coef.**	**Z**
High QVD/Low QVD	-0.2045***	-3.90	-0.0248	-0.40
I_BD	0.0242	0.80	0.0025	0.16
B_Z	0.0026	0.89	-0.0002	-0.15
BD_EX	-0.0412**	-2.09	-0.0013	-0.15
D_U	0.0104	0.47	-0.0092	-0.92
B_GD	-0.1048	-0.54	-0.0349	-0.39
B_M	0.0018	0.50	0.0003	0.28
I_AC	-0.0477***	-2.66	0.0056	0.58
A_CZ	0.0107	1.46	0.0021	0.52
A_CM	-0.0059	-0.84	0.0003	0.13
Big_4	-0.0351**	-1.99	-0.0268**	-2.21
A_CG	-0.0064	-0.07	0.0180	0.93
M_OS	-0.0011	-0.02	-0.0270	-0.68
B_H	-0.0352***	-2.29	-0.0371***	-2.76
Bsize	-0.0024**	-2.11	-0.0027***	-2.48
GWTH	-0.1644***	-3.27	-0.0306	-1.08
P_ROF	-0.0037	-0.23	-0.0087	-0.82
L_EV	-0.0507	-0.98	-0.0053	-0.11
L_IQ	-0.0017**	-2.14	-0.0006	-0.48
CR	0.0167	0.49	0.0072	-0.18
CAP	-0.0297	-0.49	0.0155	-1.14
L-D	-0.0159**	-2.09	0.0885***	-5.67
GCC	0.0181	0.52	0.0304	1.13
PT	0.0292	0.89	0.0098	0.34
Cons	0.3513	4.51	0.2296	3.24

High QVD, R-sq: 0.1794 Prob > Chi2: 0.001 **Low QVD, R-sq: 0.1629 Prob > Chi2: 0.001**

******, **and * indicate the significance of coefficient at 0.01, 0.05, and 0.10 levels respectively.***

Table VII Results of panel data regression for the relationship between EM and VDQ based on modified Jones model

EM_DA			
Variables	**Coef.**	**Z**	**P>|z|**
QVD	-0.0690	-3.54	0.001***
I_BD	-0.0209	-2.11	0.035**
B_Z	-0.0023	-2.55	0.011***
BD_EX	-0.0027	-0.43	0.664
D_U	-0.0074	-1.19	0.235
B_GD	-0.0343	-0.57	0.568
B_M	0.0002	0.22	0.828
I_AC	0.0079	1.31	0.189
A_CZ	-0.0052	-2.11	0.035**
A_CM	0.0001	0.05	0.956
Big_4	-0.0194	-2.62	0.009***
A_CG	0.0805	1.33	0.182
M_OS	-0.0095	-0.47	0.639
B_H	0.0139	1.26	0.119
Bsize	0.0003	0.20	0.841
GWTH	0.0043	-0.25	0.805
P_ROF	0.0084	1.56	0.120
L_EV	-0.0242	-1.36	0.175
L_IQ	0.0003	1.00	0.361
CR	-0.0054	-0.56	0.576
CAP	-0.0020	-0.18	0.857
L-D	-0.0047	-0.93	0.354
GCC	0.0103	0.98	0.325
PT	0.0056	0.60	0.547
-Cons	0.1241	5.13	0.001

Random-effect method GLS regression,
R-sq: 0.1181, Prob > Chi2: 0.001
******, **and * indicate the significance of coefficient at 0.01, 0.05, and 0.10 levels respectively.***

Table VIII Results of panel data regression for the relationship between EM and three dimensions of QVD

	Model 1 EM_LLP			Model 2 EM_DA		
Variables	**Coef.**	**Z**	**P>|z|**	**Coef.**	**Z**	**P>|z|**
ST_RQ	-0.016	-1.160	0.188	-0.0173	-1.70	0.101
Spread	-0.812	-9.780	0.001***	-0.4438	-8.830	0.001***
USEFUL	-0.033	-3.140	0.002***	-0.0392	-6.050	0.001***
I_BD	-0.039	-2.560	0.011***	-0.0209	-2.220	0.026**
B_Z	-0.002	-1.040	0.299	-0.0019	-2.340	0.019**
BD_EX	0.001	0.100	0.922	-0.0003	-0.050	0.957
D_U	0.002	0.220	0.829	-0.0051	-0.900	0.368
B_GD	-0.020	-0.220	0.826	-0.0254	-0.460	0.648
B_M	0.002	1.340	0.179	0.0005	0.540	0.586
I_AC	-0.005	-0.510	0.607	-0.0112	-1.940	0.052*
A_CZ	-0.006	-1.690	0.092	-0.0041	-1.870	0.074*
A_CM	0.001	0.230	0.819	0.0002	0.110	0.911
Big_4	-0.029	-2.680	0.007***	-0.0165	-2.320	0.02**
A_CG	-0.012	-0.520	0.603	0.0049	0.400	0.689
M_OS	-0.028	-0.780	0.433	-0.0135	-0.760	0.447
B_H	-0.016	-1.170	0.240	-0.0144	-2.060	0.039**
Bsize	-0.001	-1.140	0.256	0.0002	0.610	0.543
GWTH	-0.065	-2.530	0.011***	0.017	1.000	0.317
P_ROF	-0.012	-0.440	0.661	0.0033	0.690	0.490
L_EV	-0.014	-1.540	0.124	-0.0157	-0.930	0.352
L_IQ	-0.001	-2.400	0.016***	0.0003	1.010	0.314
CR	0.011	0.800	0.421	-0.0036	-0.390	0.697
CAP	0.006	0.380	0.705	0.0034	0.330	0.742
L-D	-0.029	-3.820	0.001***	-0.0065	-1.370	0.171
GCC	0.037	1.690	0.09*	0.0186	2.030	0.043**
PT	0.024	1.050	0.294	0.0053	0.700	0.482
-Cons	0.483	11.960	0.001***	0.1915	8.070	0.001***

Random-effect method GLS regression,

R-sq: 0.3824, Prob > Chi2: 0.001 R-sq: 0.2237, Prob > Chi2: 0.001

******, **and * indicate the significance of coefficient at 0.01, 0.05, and 0.10 levels respectively.***

Table IX Results of panel data regression without control variables

	EM_LLP			EM_DA		
Variables	**Coef.**	**Z**	**P>|z|**	**Coef.**	**Z**	**P>|z|**
QVD	-0.10672	-3.43	0.001***	-0.0618	-3.18	0.001***
ST_RQ	-0.0083	-0.56	0.577	-0.0201	-1.85	0.121
Spread	-0.7837	-9.41	0.001***	-0.4289	-8.85	0.001***
USEFUL	-0.0386	-3.66	0.001***	-0.0341	-5.46	0.001***

****** **and * indicate the significance of coefficient at 0.01, 0.05, and 0.10 levels respectively.***

Table X Instrumental variables (2SLS regression)

EM_LLPs			
Variables	**Coef.**	**z**	**P>|z|**
Lag-VDQ	-0.1048	-6.24	0.001***
I_BD	0.0176	-0.58	0.558
B-Z	0.0015	-1.51	0.130
BD_EX	-0.0114	-2.83	0.005***
D_U	-0.0025	0.24	0.813
B_GD	-0.0491	-1.28	0.200
B_M	0.0004	-0.51	0.608
I_AC	-0.0156	-0.61	0.543
A_CZ	0.0054	1.63	0.103
A_CM	-0.0010	-1.34	0.180
Big_4	-0.0316	-2.36	0.174***
A_CG	0.1263	1.21	0.227
M_OS	-0.0117	-0.47	0.636
B_H	-0.0409	-3.05	0.002***
Bsize	-0.0026	0.54	0.592
GWTH	-0.1120	-3.57	0.001***
P_ROF	-0.0101	1.96	0.050**
L_EV	-0.0333	-1.40	0.161
L_IQ	-0.0013	-0.85	0.398
CR	0.0175	-4.25	0.001***
CAP	-0.0078	7.20	0.001
L-D	-0.0258	-3.12	0.002***
GCC	0.0145	0.53	0.594
PT	0.0322	1.12	0.262
-Cons	0.2704	6.10	0.001***

****** **and * indicate the significance of coefficient at 0.01, 0.05, and 0.10 levels respectively.***

Independent variables*:* Lag-VDQ= is the lagged variable of VDQ.

Appendix A

Checklist of Voluntary disclosure (VD) categories and items:

1. Background about the bank / general corporate information (7):
Brief narrative history of the Bank
Basic organization structure / chart / description of corporate structure
General description of business activities
Date of establishment
Official address / registered address / address for correspondence.
The web address of the bank/email address
Other background information
2. Corporate Strategy (4):
Management's objectives and strategies / corporate vision
Future strategy- general development of business.
Impact of strategy on future results
Other corporate strategy information
3. Corporate Governance (18)
Details about the chairman (other than name/title).
Details about directors (other than name/title).
Duties of board members.
Number of shares held by directors.
List of top five shareholders of the bank.
Number of shares held by managers.
Details of CEO's contact address.
Definition of independent directors.
Nature of chairman of the board of directors.
Directors' engagement/directorship of other companies.
Picture of all directors/board of directors.
Picture of chairperson only.
Information about changes in board members.
The number of the board of members meetings held and date.
List of the audit committee.
Chairman's statement.
CEO's statement.
Classification of managers as executive or outsider.
4. Accounting Policies (8)
Accounting valuation of fixed assets (e.g., fair value or historical cost).
The depreciation methods used.
Foreign currency transactions.
Events after the balance sheet date
Disclosure of accounting standards uses for its accounts
Statements of compliance with approved IFRS/IASs
Treatment of contingent liabilities
Other accounting policies
5. Financial Performance (ratios) and other statistics information (16):
A brief discussion of the bank's financial position
Disclosure on non-performing loans (NPLs) / Impaired loans
Analysis of bank's liquidity position
Return on assets (ROA)
Return on equity (ROE)
Liquidity ratios.

Earnings per share (EPS)
Capital adequacy ratios.
Total dividends.
Dividends per share for the period
Number of branches extension during the current fiscal year.
Financial statistics / financial highlights for more than one year
Comparative Income statement for 2 years.
Comparative balance sheet for 2 years.
Cash flow statement
A key achievement during the current year

6. General Risk Management (7):

Discussion of overall risk management policy
Narrative discussions on risk assets, risk measurement.
Discussion on how risk are managed and controlled.
Information on the risk management committee.
Information on assets-liability management committee.
Information on the risk management structure.
Other information on risk management

7. Credit Risk Exposure (7):

Disclosure on credit exposure
Information on credit risk management structure
Disclosures about the current loan.
Details of a problem on loans and other assets.
Disclosure of credit rating system.
Disclosure about risk management process (use of risk-mitigating tools such as collaterals, guarantees, netting agreement, managing concentrations).
Other information on risk exposure.

8. Currency and market Risk (4):

They are broken down by assets and liabilities.
Maturity of foreign currency assets and liabilities.
General descriptions of market risk segments.
Other information on market risk

9. Liquidity Risk Exposure (3):

Information about the bank's available liquid assets as well as sources and uses of funds.
Maturity information about deposits and other liabilities.
Other information on liquidity risk

10. Key Non-financial Statistics (7):

Details of branch location.
Number of branches.
Number of branch expansion during the year -2007.
Information on branch computerizations.
Information on ATM.
Location of ATM and their address.
Other non-financial information statistics

11. Corporate Social Disclosure (5):

Sponsoring public health, sporting of recreational and social projects and education.
Information on donations to charitable.
Supporting national pride / government sponsored campaigns.
Information on social banking activities / banking for the society.
Other corporate social disclosure.

12. Employee information (6):

Total number of employees.
Number of employees trained.
Policy on employees training.
Average compensation per employee.

Information on welfare of employees.
Other employee information

13. Others:

General voluntary disclosure information (e.g. On-line banking, international banking facilities, Information on credit card)

Appendix B: The Usefulness Dimension index

	Depth of information disclosed	*Operationalization*
Relevance	To what extent does the company use fair value instead of historical cost?	1 = Only historical cost 2 = Mostly historical cost 3 = Balance fair value / historical cost 4 = Most fair value 5 = Only fair value
	To what extent does the presence of non-financial information in terms of business opportunities and risks complement the financial information?	1 = No non-financial information 2 = Limited non-financial information, not very useful for forming expectations 3 = Sufficient useful non-financial information 4 = Relatively much useful non-financial information, helpful for developing expectations 5 = Very extensive non-financial information presents additional information which helps developing expectations
	To what extent does the risk section provide good insights into the risk profile of the company?	1 = No insights into risk profile 2 = Limited insights into risk profile 3 = Sufficient insights into risk profile 4 = Relatively much insights into risk profile 5 = Very extensive insights into risk profile
	To what extent does the annual report contain forward- looking information?	1 = No forward-looking information 2 = Limited forward-looking information 3 = Sufficient forward-looking information 4 = Relatively much forward-looking information. 5 = Very extensive forward-looking information
	To what extent does the annual report contain information on CSR?	1 = No information on CSR 2 = Limited information on CSR 3 = Sufficient information on CSR 4 = Very much information on CSR 5 = Very extensive information on CSR
	To what extent does the annual report contain disclosure of the extraordinary gains and losses?	1 = No proper disclosure 2 = Limited proper disclosure 3 = Sufficient proper disclosure 4 = Very much proper disclosure 5 = Very extensive proper disclosure
	To what extent does the annual report contain information regarding employee policies?	1 = No information regarding personnel policies 2 = Limited information regarding personnel policies 3 = Sufficient information regarding personnel policies 4 = Very much information regarding personnel policies 5 = Very extensive information regarding personnel policies
	To what extent does the annual report contain an analysis concerning cash flows?	1 = No analysis 2 = Limited analysis 3 = Sufficient analysis 4 = Very much analysis 5 = Very extensive analysis
	To what extent are the intangible assets disclosed?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure
	To what extent are the "off-balance" activities disclosed?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure

	To what extent is the financial structure disclosed?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure
	To what extent does the annual report contain information concerning the bank's going concern?	1 = No information concerning going concern 2 = Limited information concerning going concern 3 = Sufficient information concerning going concern 4 = Very much information concerning going concern 5 = Very extensive information concerning going concern
	To what extent do the reported results provide feedback to users of the annual report as to how various market events and significant transactions affected the company?	1 = No feedback 2 = Little feedback on the past 3 = Feedback is present 4 = Feedback helps understanding how events and transactions influenced the company 5 = Comprehensive feedback
Faithful representation	To what extent are valid arguments provided to support the decision for certain assumptions and estimates in annual report?	1 = No valid arguments 2 = Limited valid arguments 3 = Sufficient valid arguments 4 = Very much valid arguments 5 = Very extensive valid arguments
	To what extent does the company base its choice for certain accounting principles on valid arguments?	1 = No valid arguments 2 = Limited valid arguments. 3 = Sufficient valid arguments 4 = Very much valid arguments 5 = Very extensive valid arguments
	Which type of auditor's report is included in the annual report?	1 = Adverse opinion 2 = Disclaimer of opinion 3 = Qualified opinion 4 = Unqualified opinion: financial figures 5 = Unqualified opinion: financial figures + internal control
	To what extent does the company provide information on corporate governance?	1 = No description of corporate governance 2 = Limited description of corporate governance 3 = Sufficient description of corporate governance 4 = Very much description of corporate governance 5 = Very extensive description of corporate governance
	To what extent does the annual report contain disclosure related to both positive and negative contingencies?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure
	To what extent does the annual report contain information concerning bonuses of the board of directors?	1 = No information concerning bonuses 2 = Limited information concerning bonuses 3 = Sufficient information concerning bonuses 4 = Very much information concerning bonuses. 5 = Very extensive information concerning bonuses
Understandability	To what extent is the annual report presented in a well organized manner?	1 = Very bad presentation 2 = Bad presentation 3 = Poor presentation 4 = Good presentation 5 = Very good presentation
	To what extent does the presence of graphs and tables clarify the presented information?	1 = No graphs and tables. 2 = 1-5 graphs 3 = 6-10 graphs 4 = 11-15 graphs 5 = > 15 graphs
	To what extent is the use of language and technical jargon in	1 = Very much jargon 2 = Much jargon

	the annual report easy to follow?	3 = Moderate use of jargon 4 = Limited use of jargon 5 = No/hardly any jargon
	What is the size of the glossary?	1 = No glossary 2 = Less than 1 page 3 = Approximately 1 page 4 = 1-2 pages 5 = > 2 pages
	To what extent does the annual report contain information concerning mission and strategy?	1 = No information concerning mission and strategy 2 = Limited information concerning mission and strategy 3 = Sufficient information concerning mission and strategy 4 = Very much information concerning mission and strategy 5 = Very extensive information concerning mission and strategy
	To what extent is the annual report understandable in the perception of the researcher?	1 = Very badly understandable 2 = Badly understandable 3 = Poorly understandable 4 = Good understandable 5 = Very good understandable
	To what extent are the notes to the balance sheet and the income statement sufficiently clear?	1 = No explanation 2 = Very short description, difficult to understand 3 = Explanation that describes what happens 4 = Terms are explained (which assumptions etc.) 5 = Everything that might be difficult to understand is explained
Comparability	To what extent are changes in accounting policies disclosed?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure
	To what extent are changes in accounting estimates disclosed?	1 = No disclosure 2 = Limited disclosure 3 = Sufficient disclosure 4 = Very much disclosure 5 = Very extensive disclosure
	To what extent does the company provide a comparison of the results of current accounting period with previous accounting periods?	1 = No comparison 2 = Only with previous year 3=With 5years 4 = 5 years + description of implications 5 = 10 years + description of implications
	To what extent does the company present financial index numbers and ratios in the annual report?	1 = No ratios 2 = 1-5 ratios 3 = 6-10 ratios 4 = 11-15 ratios 5 = > 15 ratios
	To what extent does the annual report contain information concerning companies' shares?	1 = No information concerning companies' shares 2 = Limited information concerning companies' shares 3 = Sufficient information concerning companies' shares 4 = Very much information concerning companies' shares 5 = Very extensive information concerning companies' shares
	To what extent did the company adjust previous accounting period's figures, for the effect of the implementation of a change in accounting policy or revisions in accounting estimates?	1 = No adjustments 2 = Described adjustments 3 = Actual adjustments (one year) 4=2years 5=>2years+notes

Timeliness	How many days did it take for the auditor to sign the auditors' report after book year end?	Natural logarithm of amount of days 1 = 1- 1.99 2 = 2-2.99 3 = 3-3.99 4 = 4-4.99 5 = 5-5.99

Appendix C: Variables measurement and definition

Symbol	Definition
EM_LLP	represents the extent of earnings management
QVD	stands for the quality of voluntary disclosure
I_BD	is calculated as the total number of independent directors scaled by the total number of board directors
B_Z	represents the size of the board
BD_EX	represents the proportion of board directors with financial expertise
D_U	is a dummy variable that takes a score of one if the Chief Executive Officer (CEO) has more than one role and zero otherwise
B_GD	represents the proportion of women board directors
B_M	is the total number of board meetings held in a financial year
I_AC	is measured as the number of independent directors on the audit committee scaled by the total number of audit committee members,
A_CZ	represents the size of the audit committee
A_CM	stands for the total number of audit committee meeting held in a financial year
A_CEX	represents the audit members with financial expertise
Big_4	is a dummy variable the takes the value of one if the largest four auditing firms audit the bank and zero otherwise.
A_CG	stands for the proportion of audit committee female members
M_OS	is the proportion of total shares held by managers scaled by the total number of outstanding shares
B_H	represents external stockholders with at least 5% of outstanding shares
Bsize	is measured as a natural logarithm of total assets
GWTH	is calculated as the change in total assets scaled by the lag of total assets
L_EV	is measured as total liabilities divided by total assets,
P_ROF	is calculated as net income scaled by the lag of total assets
L_IQ	is measured as current assets scaled by current liabilities
CR	is the credit risk and measured as the ratio of loan loss provisions scaled by total loans
CAP	represents capital adequacy ratio and is measured as the proportion of actual regulatory capital (Tier 1 capital) divided by the total assets
L-D	stands for external financing is measured as loan to deposit for bank *i* at the year *t*
PT	is a dummy variable that takes the value of one if a bank is based in Egypt, Yemen, Syria, Tunisia, or Iraq and zero otherwise.
GCC	is a dummy variable that takes a value of one if a bank is based in GCC and zero otherwise.